

**ABSTRACT OF THE DISCLOSURE**

[1059] A frequency detector and frequency-locked loop suitable for use in a clock recovery circuit are disclosed. The detector is linear, and can be used in implementing a loss of lock indicator. Variable delay filtering permits the frequency detector to be less sensitive to data fluctuations, and random or pseudo random addition of jitter helps address low gain in the data stream. A VCO controller cycles through a number of control states and provides varying levels of gain, dither and delay during each of the control states.